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## Staff Memorandum

To: THE COMMISSION

DOCKET NO. RR-03639A-07-0517

From: Safety Division

Date: April 11, 2008

RE: IN THE MATTER OF THE APPLICATION OF THE UNION PACIFIC RAILROAD COMPANY TO ALTER FOUR CROSSINGS OF THE UNION PACIFIC RAILROAD AT HARTMAN, WHITE & PARKER, PORTER, AND MARICOPA (SR 347) ROADS.

### Background

On September 7, 2007, the Union Pacific Railroad Company ("Railroad") filed with the Arizona Corporation Commission ("Commission") an application for approval for the Railroad to alter four crossings of the Railroad in the City of Maricopa ("City") in Pinal County ("County"), Arizona by adding a second mainline track. Three of these crossings are in the City subject to the city's jurisdiction as follows: Porter Road, AAR/DOT No. 741-345-R; White & Parker Road, AAR/DOT No. 741-346-X; and Hartman Road, AAR/DOT No. 741-347-E. The fourth crossing involves an Arizona Department of Transportation (ADOT) roadway at Maricopa Road/State Route 347, AAR/DOT No. 741-343-C. Commission Safety Division Staff ("Staff") issued data requests and those data requests and the Railroad's responses (without attachments), are included as attachments to this memorandum.

The City of Maricopa is the road authority for Porter Road, White and Parker Road and Hartman Road. The crossings at Porter Road and White and Parker Road were both put into service in 1974 with flashing lights, bells and automatic gates. The crossing at Hartman Road was equipped with flashing lights, bells, and automatic gates in Commission Decision No. 48250 on 9/13/1977. The Arizona Department of Transportation (ADOT) has jurisdiction over the crossing at Maricopa Road/SR347. This crossing was put in service in 1974 equipped with flashing lights, bells and automatic gates.

Union Pacific's filing in this application requests approval for the Railroad to add a second main track, twenty feet from the center of the existing main track. This application is part of the Railroad's double tracking effort for their Sunset Route across Arizona.

On February 21, 2007, Staff, the Railroad, the City of Maricopa, Pinal County, and ADOT, participated in a diagnostic review of the proposed improvements at Porter Road, White and Parker Road, Hartman Road, and Maricopa/SR347. All parties present were in agreement to the proposed improvements at the previously mentioned crossings. The following is a break down of each of the four crossings in this application, including information about each crossing that was provided to Staff by the Railroad and its contractors.

### **Geographical Information**

All crossings in this application are located in the vicinity of Maricopa, Arizona (north-western Pinal County). Maricopa was incorporated in 2003 and is located approximately 35 miles south of downtown Phoenix. The City of Maricopa experienced explosive growth over the past decade and the DES population estimate as of July 2007 was 32,157 residents.

The City of Maricopa is split by the main street running through the City on a North-South trajectory (John Wayne Parkway, aka State Route 347 or Maricopa Road). The UP Sunset Route line enters into Maricopa from the Casa Grande area to the southeast and runs on a south-east to north-west trajectory through the City. Ultimately, the track turns in a west-southwest direction just west of Maricopa and makes its way into Gila Bend, Yuma and on into California.

The eastern-most crossing in this application is Hartman Road (located six miles southeast of the SR347). The next crossing moving west is White and Parker Road, then getting into the heart of Maricopa is the next crossing (Porter Road) and finally John Wayne Parkway/SR 347 in central Maricopa, Arizona.

The main vehicular route from Maricopa to Casa Grande is State Route 238 (Maricopa – Casa Grande Highway). This State Highway runs parallel to the Railroad tracks. A map of the area has been attached to this report.

### **Hartman Road**

The proposed second main track at this crossing will be located north of the existing main track. The Railroad will re-profile a portion of the two lane asphalt road to meet the new track. The Railroad will also upgrade the existing warning equipment with new 12" LED flashing lights, gates, bells, and constant warning time circuitry as well as a new concrete crossing surface. The proposed measures are consistent with safety measures employed at similar at-grade crossings in the state.

Traffic data provided by Jennifer Crumbliss of HDR Engineering (a contractor of the Railroad), estimates the Average Daily Traffic ("ADT") for this crossing to be 366 vpd. This count was taken in 2007. The projected ADT for the year 2030 is 72,428 vpd. However, more recent projected traffic counts provided by the City indicate that projected ADT for the year 2030 are likely to be in the 8,000-9,000 vpd range. The current Level of Service ("LOS") for the two lane road is LOS A, for both north and south bound traffic. The posted speed limit is 45 MPH. Commission Rail Safety Section, as well as Federal Railroad Administration ("FRA") accident/incident records indicate two accidents, the more recent accident with one injury that occurred on 6/1/1989. The other non-injury accident occurred on 3/27/1973. No fatalities have

occurred at this crossing. Flashing lights, bells, and automatic gates were installed at this location in 1977, through Commission Order No. 48250.

**Note:** The American Association of State Highway and Transportation Officials (AASHTO) Geometric Design of Highways and Streets, 2004, states that the Level of Service characterizes the operating conditions on a facility in terms of traffic performance measures related to speed and travel time, freedom to maneuver, traffic interruptions, and comfort and convenience. This is a measure of roadway congestion ranging from LOS A--least congested--to LOS F--most congested. LOS is one of the most common terms used to describe how "good" or how "bad" traffic is projected to be.

Alternative routes from this crossing are as follows; to the west 2.4 miles to White and Parker Road, and to the east 2.44 miles to Anderson Road, both are at-grade crossings.

The estimated cost of the proposed railroad crossing upgrade is \$266,320. The Railroad is paying for the entire cost of the crossing improvements, broken down by signal and crossing surface improvements, with the signal work costing \$ 220,000, and the crossing surface \$46,320.

#### **White and Parker Road**

The proposed second main track at this crossing will be north of the existing main track. The Railroad will re-profile a portion of the two lane asphalt road to meet the new track. The Railroad will also upgrade the existing warning equipment with new 12" LED flashing lights, gates, bells, and constant warning time circuitry as well as a new concrete crossing surface. The proposed measures are consistent with safety measures employed at similar at-grade crossings in the state.

Traffic data provided by Karen Wonders of the City of Maricopa, estimates the Average Daily Traffic ("ADT") for this crossing to be 919 vpd, with 40 percent of the vehicles being trucks. The projected ADT for the year 2025 is 38,288. Staff has found this projection to be slightly inflated, with a more updated projection of 34,074 vpd. According to HDR Engineering, the current Level of Service ("LOS") for this two lane road is LOS A, for both north and south bound traffic. The posted speed limit on this road is 40 MPH. Commission Rail Safety Section, as well as Federal Railroad Administration ("FRA") accident/incident records indicate no accidents at this crossing, with no fatalities. This crossing was put into service in 1974 and equipped with flashing lights, bells, and automatic gates.

Alternative routes from this crossing are as follows; to the west 1.25 miles to Porter Road, and to the east 2.4 miles to Hartman Road, both are at-grade crossings.

The estimated cost of the proposed railroad crossing upgrade is \$257,125. The Railroad is paying for the entire cost of the crossing improvements, broken down by signal and crossing surface improvements, with the signal improvements costing \$226,245, and the crossing surface \$30,880.

#### **Porter Road**

The proposed second main track at this crossing will be located north of the existing main

track. The Railroad will re-profile a portion of the four lane rural asphalt road to meet the new track. The Railroad will also upgrade the existing warning equipment with new 12" LED flashing lights, gates, bells, and constant warning time circuitry as well as a new concrete crossing surface and replace any impacted pavement markings. The proposed measures are consistent with safety measures employed at similar at-grade crossings in the state.

Traffic data for Porter Road was provided to the Railroad by the City of Maricopa, and ADOT. Data provided shows the Average Daily Traffic (ADT) for 2006 to be 3,000 vpd. Data provided by ADOT's SR347 Feasibility Report from 2007, estimates that in 2025 the ADT will be 51,405 vpd. However, more recent estimates provided by the City and verified by Staff indicate that estimated ADT in 2030 to be 27,771 vpd. According to HDR Engineering, the current Level of Service ("LOS") for this four lane road is LOS A, for both north and south bound traffic.

The posted speed limit on Porter Road is 25 MPH. Commission Rail Safety Section, as well as Federal Railroad Administration ("FRA") accident/incident records indicate one non-injury accident on Porter Road on 9/14/1976. No injuries or fatalities have occurred at this crossing.

Alternative routes from this crossing are as follows; to the west 2.5 miles to Maricopa Road, and to the east 1.25 miles to White and Parker Road.

The estimated cost of the proposed railroad crossing upgrade is \$395,517. The Railroad is paying for the entire cost of the crossing improvements, broken down by signal and crossing surface work, with the signal work costing \$333,757 and the crossing surface \$61,760.

#### **Maricopa Road/SR 347**

The proposed second main track at this crossing will be south of the existing main track. The Railroad will re-profile a portion of the four lane asphalt road to meet the new track. The Railroad will also upgrade the existing warning equipment with new 12" LED flashing lights, gates, bells, and constant warning time circuitry as well as a new concrete crossing surface. The existing raised median at the crossing will be utilized to accommodate the new warning devices. The proposed measures are consistent with safety measures employed at similar at-grade crossings in the state.

Traffic data provided by Karen Wonders of the City of Maricopa, estimates the Average Daily Traffic ("ADT") for this crossing to be 38,575. The projected ADT for the year 2020 is 65,922 vpd. Staff has found this projection to be reasonable. According to HDR Engineering, the current Level of Service ("LOS") for this four lane road is LOS A, for both north and south bound traffic. The posted speed limit on this road is 35MPH. Commission Rail Safety Section, as well as Federal Railroad Administration ("FRA") accident/incident records indicate five accidents at this crossing, with five fatalities. The first accident with fatalities, occurred on 10/2/1988, and resulted in four fatalities. The second accident with fatalities, occurred on 6/2/2000, and resulted in one fatality. The other non-injury accidents that occurred are as follows: 5/28/1975, 9/29/1993, and 4/4/2003. This crossing was put into service in 1974 and equipped with flashing lights, bells, and automatic gates.

Alternative routes from this crossing are as follows; to the west 5.0 miles to Ralston Road, and to the east 2.5 miles to Porter Road, both are at-grade crossings.

The estimated cost of the proposed railroad crossing upgrade is \$359,795. The Railroad is paying for the entire cost of the crossing improvements, broken down by signal and crossing surface improvements, with the signal improvements costing \$290,315, and the crossing surface \$69,480.

### **Final Feasibility Report / Environmental Overview**

In early 2006 the City of Maricopa and ADOT embarked on a study to determine a solution for the State Route (SR 347) and the UPRR intersection situation. The goals of the project include:

- Grade separation between SR 347 and the Railroad
- Maintain and upgrade SR 347 connections with other key roadways in the area
- Consider other road network needs
- Consider other community planned improvements
- Consider likely environmental impacts

A Final Feasibility Report / Environmental Overview (FR/EO) released in August of 2007, documents the results of an investigation of alternatives for grade separating SR 347 from the Railroad in the City of Maricopa. The study considered existing and future traffic requirements, community impacts, environmental considerations and the need to provide a project which helps address the long term regional transportation needs of the community. The FR/EO presents five options for achieving the project goals and evaluates each based on a range of criteria including cost, effectiveness and community impacts. The costs related to the five options range from \$61.6 million to \$113.6 million.

Staff has learned recently from ADOT that the next step in the study process is to develop a Design Concept Report (DCR), which will determine the optimum option. According to ADOT, the DCR and Environmental Assessment process will not begin for another two years. The final design would begin after the two year period. Currently, funding for the grade separation has not been identified.

### **Train Data**

Data provided by the railroad regarding train movements through these four crossings are as follows, and are the same for all four crossings:

**Train Count:** 48 total average trains per day (46 freight, and 2 passenger trains)

**Train Speed:** 79 mph passenger / 70 mph freight

**Thru Freight/Switching Moves:** All train movements through these four crossings are thru movements with no switching operations, according to Union Pacific, Manager of Train Operations, Rob Henderson. These crossings are used by Amtrak twice per day, three times per week.

### **Schools and Bus Routes**

Information about schools, and school buses, in the area was provided by Sabrina Blanton, from Maricopa County School Districts transportation division. There are six schools in the area: Maricopa High School at 45012 W. Honeycutt Avenue, Maricopa Wells Middle School at 45725 W. Honeycutt, Santa Cruz Elementary at 45012 W. Honeycutt, Maricopa Elementary at 18150 N. Alterra Parkway, Pima Butte Elementary at 42202 W. Rancho El Dorado, and Santa Rosa Elementary at 21400 N. Santa Rosa Drive. The buses for all the schools combined, cross Maricopa Road/SR347 a total of 116 times per day during the week, and cross Porter Road twice per day during the week. White and Parker and Hartman are not school bus routes.

When asked about passenger busses at any of these four crossings, the Union Pacific responded by saying that they were not aware of any public passenger buses that utilize the crossings involved in this application.

### **Hospitals**

The nearest hospitals to these crossings are either Chandler Regional Hospital, approximately thirty minutes to the north, or Casa Grande Hospital approximately forty five minutes to the east. The nearest crossing to Chandler Regional Hospital is SR347 and the nearest crossing to Casa Grande Hospital is Hartman Road. Union Pacific states that none of these four crossings are used regularly by emergency services personnel. That said, staff has observed EMS vehicles crossing SR347.

### **Hazardous Materials**

The railroad gave the following response when asked about hazardous materials crossing these four crossings:

*Union Pacific has been unable to obtain any information responsive to this request. It is Union Pacific's understanding that any vehicle carrying hazardous materials may utilize public crossings unless otherwise posted, but Union Pacific knows of no way it can investigate or determine whether such vehicles use these crossings or with what frequency.*

### **Zoning**

Staff requested the Railroad provide information regarding the type of zoning in adjacent areas from the crossing. The following was their response:

*Union Pacific believes that the second part of CW 1.7 calls for speculation as to whether new housing developments, industrial parks, or other developments will occur in the future. In addition, Union Pacific does not have access to such information, but instead must rely on information provided by others. With those caveats, Union Pacific responds as follows:*

*The zoning in the area of these crossings is shown on the City of Maricopa Draft Zoning Map and is summarized below:*

<i>Crossing</i>	<i>Zoning</i>
<i>Maricopa Road / SR 347</i>	<i>Industrial and Business</i>
<i>Porter Road</i>	<i>Single Residence Min Lot area 12,000 sq ft &amp; Industrial</i>
<i>White &amp; Parker Road</i>	<i>General Rural and Business</i>
<i>Hartman Road</i>	<i>General Rural, Business and Single Residence</i>

*The City of Maricopa public works and Central Arizona Association of Governments' planning departments can better answer the question of future developments.*

### **Spur Lines**

The Union Pacific gave the following answer regarding spur lines located in the area:

*Using the definition of a "spur line" or "spur track" as "a stub track of indefinite length diverging from a main track or other track," ACC Regulation R14-5-101(20), the following spur lines have been removed inside a 10-mile radius of the crossings covered in this application.*

*These were the only at-grade crossings removed in order to remove a spur line. See Arizona Corporation Commission Decision No. 68111 docketed September 9, 2005 authorizing closure of these two spur crossings.*

<i>Spur Line Removed</i>	<i>Reason for Removal</i>	<i>Date of Removal</i>
<i>Martin Resources 130-ft. spur at MP 898.03</i>	<i>Track no longer needed to serve industry</i>	<i>Unknown</i>
<i>150-ft. vacant spur at MP 905.65</i>	<i>Track no longer needed to serve industry</i>	<i>Unknown</i>
<i>2,650-ft. vacant spur at MP 905.68</i>	<i>Track no longer needed to serve industry</i>	<i>Unknown</i>
<i>* Ak Chin spur at MP 905.74</i>	<i>Track no longer needed to serve industry</i>	<i>Approximately November, 2005</i>
<i>563-ft. vacant spur at MP 905.88</i>	<i>Track no longer needed to serve industry</i>	<i>Unknown</i>
<i>* AS&amp;R spur at MP 913.82</i>	<i>Track no longer needed to serve industry</i>	<i>Approximately November, 2005</i>

Source: Union Pacific's Engineering

### **FHWA Guidelines Regarding Grade Separation**

The Federal Highway Administration (FHWA) Railroad-Highway Grade Crossing Handbook (Revised Second Edition August 2007) provides nine criteria for determining whether highway-rail crossings should be considered for grade separation or otherwise eliminated across the railroad right of way. The Crossing Handbook indicates that grade separation or crossing elimination should be considered whenever one or more of the nine conditions are met. The nine criteria are applied to this crossing application as follows:

## FHWA - GRADE SEPARATION GUIDELINES

Highway-rail grade crossings should be considered for grade separation or otherwise eliminated across the railroad right of way whenever one or more of the following conditions exist:

		Hartman	White & Parker	Porter	Maricopa/347
The highway is a part of the designated Interstate Highway System	Crossing Currently meets the criteria	No	No	No	No
	Crossing meets the criteria by 2030	No	No	No	No
The highway is otherwise designed to have full controlled access	Crossing Currently meets the criteria	No	No	No	No
	Crossing meets the criteria by 2030	No	No	No	No
The posted highway speed equals or exceeds 70 mph	Crossing Currently meets the criteria	No	No	No	No
	Crossing meets the criteria by 2030	No	No	No	No
AADT exceeds 100,000 in urban areas or 50,000 in rural areas	Crossing Currently meets the criteria	No	No	No	No
	Crossing meets the criteria by 2030 <sup>1</sup>	No	No	No	Yes
Maximum authorized train speed exceeds 110 mph	Crossing Currently meets the criteria	No	No	No	No
	Crossing meets the criteria by 2030	No	No	No	No
An average of 150 or more trains per day or 300 million gross tons/year	Crossing Currently meets the criteria	No	No	No	No
	Crossing meets the criteria by 2030 <sup>2</sup>	Yes	Yes	Yes	Yes
Crossing exposure (trains/day x AADT) exceeds 1M in urban or 250k in rural; or passenger train crossing exposure exceeds 800k in urban or 200k in rural <sup>3</sup>	Crossing Currently meets the criteria <sup>3</sup>	No	No	No	Yes
	Crossing meets the criteria by 2030 <sup>4</sup>	Yes	Yes	Yes	Yes
Expected accident frequency for active devices with gates, as calculated by the US DOT Accident Prediction Formula including five-year accident history, exceeds 0.5	Crossing Currently meets the criteria	No	No	No	No
	Crossing meets the criteria by 2030	Unknown	Unknown	Unknown	Unknown
Vehicle delay exceeds 40 vehicle hours per day	Crossing Currently meets the criteria	No	No	No	No
	Crossing meets the criteria by 2030 <sup>5</sup>	No	Yes	Yes	Yes

<sup>1</sup> This table utilizes the most recent projected ADT provided by the City as follows: Hartman – 8,446 (2030), White & Parker – 34,074 (2030), Porter – 27,771 (2030) and Maricopa/347 – 64,263 (2030). These ADTs are lower than those provided by the Railroad: Hartman – 72,428 (2030), White & Parker – 38,288 (2025), Porter – 51,405 (2020) and Maricopa/347 – 65,922 (2020).

<sup>2</sup> The Railroad is projected to exceed 300 million gross tons as of 2016. This projection is based on the fact that the Railroad is currently exceeding 217 million gross tons with 46 trains per day and is projected to run twice the number of trains (at lengths of up to 8,000 feet instead of the current length of 6,000 feet) by 2016.

<sup>3</sup> The crossing exposure index for Maricopa/347 is currently 1.9 Million.

<sup>4</sup> The projected crossing exposure utilizing the most recent projected VPD data are as follows: Hartman – 709,000, White & Parker – 2.8 Million, Porter – 2.3 Million and Maricopa/347 – 5.4 Million.

<sup>5</sup> Projected vehicle delay per day utilizing the most recent projected VPD data are as follows: Hartman – 9.7 hours, White & Parker – 69.7 hours, Porter – 48.4 hours, Maricopa/347 – 113.5 hours.

### Vehicular Delays at Crossings

Based on the current single track configuration, the railroad gave the following response about delay time for vehicles at the crossings in this application. The delay time is measured from the point that the warning devices are activated at the crossing to the time after the train has cleared the crossing and the warning devices are reset.

*Delays for vehicular (roadway) traffic caused by trains occupying a crossing depend on the length and speed of each train traversing the crossing. Because each train can be unique for these values it would be impossible for Union Pacific accurately to provide the time of delay for vehicular traffic either while allowing trains to pass the crossing or because trains are stopped in the crossing. With that caveat, Union Pacific responds as follows:*

*Union Pacific operations are governed by maximum allowable speeds as identified by timetable. Trains at the crossings involved in this application operate at timetable speeds of 65 mph and the average length of trains is approximately 6,000 feet. At that train length and speed, the average delay for vehicular traffic (1) to allow the train to pass at these crossings, measured from the point that the warning devices are activated at the crossing to the time after the train has cleared the crossing and the warning devices are reset, is approximately 1.549 minutes. The average time vehicular traffic is delayed (2) due to trains stopped on the track for any purpose, measured from the point that the warning devices are activated at the crossing to the time after the train has cleared the crossing and the warning devices are reset, varies according to the condition creating the blockage. These varied conditions include mechanical failure such as a broken air hose, a grade crossing accident, or operations such as trains meeting or passing. Given the variety of possible conditions causing trains to be stopped on a crossing, Union Pacific does not catalog the average time vehicular traffic is delayed by stopped trains. With that caveat, Union Pacific responds as follows: A.R.S. § 40-852 requires that, except in cases of unavoidable accident, a train blocking a crossing for more than 15 minutes must be cut to facilitate traffic flow. ACC Regulation R14-5-104(C)(7) and Union Pacific's operating practices allow a train to block a public grade crossing for no more than 10 continuous minutes, unless the train is continuously moving in the same direction during the entire time it occupies the crossing, or the blockage is caused by wrecks, derailments, acts of nature, mechanical failure, or other emergency conditions.*

Based on the railroads double tracking project, and the projected number of 84 trains per day through this crossing by the year 2016, the railroad gave this response as to what future delay times would be for vehicles at the crossings in this application.

*Delays for vehicular (roadway) traffic caused by trains occupying a crossing depend on the length and speed of each train traversing the crossing. Because each train can be unique for these values it would be impossible for Union Pacific accurately to provide the time of delay for vehicular traffic either while allowing trains to pass the crossing or because trains are stopped in the crossing. With that caveat, Union Pacific responds as follows:*

*Union Pacific operations are governed by maximum allowable speeds as identified by*

*timetable. Trains at the crossings involved in this application are projected to operate at timetable speeds of 65 mph and the average length of trains is projected to be approximately 8,000 feet. At that train length and speed, the average delay for vehicular traffic at these crossings in 2016 (1) to allow the train to pass at the crossing, measured from the point that the warning devices are activated at the crossing to the time after the train has cleared the crossing and the warning devices are reset, is projected to be approximately 1.899 minutes.*

*The average time vehicular traffic is delayed (2) due to trains stopped on the track for any purpose, measured from the point that the warning devices are activated at the crossing to the time after the train has cleared the crossing and the warning devices are reset, varies according to the condition creating the blockage. These varied conditions include mechanical failure such as a broken air hose, a grade crossing accident, or operations such as trains meeting or passing. Given the variety of possible conditions causing trains to be stopped on a crossing, Union Pacific does not catalog the average time vehicular traffic is delayed by stopped trains.*

*With that caveat, Union Pacific responds as follows: A.R.S. § 40-852 requires that, except in cases of unavoidable accident, a train blocking a crossing for more than 15 minutes must be cut to facilitate traffic flow. ACC Regulation R14-5-104(C)(7) and Union Pacific's operating practices allow a train to block a public grade crossing for no more than 10 continuous minutes, unless the train is continuously moving in the same direction during the entire time it occupies the crossing, or the blockage is caused by wrecks, derailments, acts of nature, mechanical failure, or other emergency conditions.*

A traffic delay and queuing analysis was prepared for the Maricopa Road, Porter Road, White & Parker Road and Hartman Road crossings utilizing formulas found in the Transportation and Traffic Engineering Handbook, Second Edition. This document is published by the Institute of Transportation Engineers (ITE). Using the data provided by the Railroad for existing traffic counts (ADT) it was determined that the current daily vehicle delays are as follows:

✓ Hartman Road	0.2 hours of delay per day
✓ White and Parker Road	1.8 hours of delay per day
✓ Porter Road	0.5 hours of delay per day
✓ Maricopa Road	24.5 hours of delay per day

All of the above-referenced delays are below the FHWA recommended threshold of 40 hours per day.

However, utilizing the future projected ADT, in three of the four cases the projected future ADT and resultant traffic delay met or exceeded criteria for considering grade separation (40 vehicle delay hours per day), as outlined in the FHWA Guidelines.

Another commonly used measure outlined in the FHWA Guidelines, the so-called Crossing Exposure Index (which is simply the product of the number of trains per day multiplied by the number of vehicles crossing daily) was also met in each case, using future projected traffic volumes. Only Maricopa Road/SR347 met the threshold based on current traffic and train

volume. It should be noted that the criteria identified in the FHWA material are not mandates, but Guidelines established by the Federal Highway Administration, which serve to alert those having jurisdiction that potential problems may arise. It was suggested by Mark Wavering of Jacobs Engineering that anytime the Average Daily Traffic count at any of these crossings reaches 25,000, consideration should be given to grade separation. In the case of Maricopa Road, this volume of traffic is already present. Despite the current lull in home building, the likelihood of continued growth in the area of the City of Maricopa is very strong and the projected traffic volumes for the roadways in question could potentially be underestimated.

The use of Average Daily Traffic counts (ADT) and Level of Service designation LOS "A" is slightly misleading in describing traffic conditions. The flow of traffic is not uniform over a twenty four hour period, but fluctuates greatly at different times of the day. A more accurate assessment of traffic conditions is provided by the peak hour volumes for typical morning and afternoon traffic. A train passing through at 2:00 A.M. will not have the same impact on traffic that it does at 5:00 P.M. The Federal Highway Administration has established a total of 40 hours of vehicle delay in a 24 hour period as the point at which consideration should be given to providing a grade separation. None of the four crossings currently meet that standard, but Maricopa Road is approaching 40 hours of vehicular delays per day. The actual delay, including impacts on intersecting streets and driveways may be even greater, but is too complicated to calculate with any confidence. At any rate, the level of service may decline somewhat in the future, depending on the number of lanes available and the frequency and duration of traffic delays.

### **Grade Separation**

With regard to grade separating any of the four crossings, the Railroad gave the following response:

*Union Pacific understands that whether a grade separation is needed is primarily a question of mobility and convenience for vehicular traffic on the roadway, not safety. That is because an at-grade crossing can be safe without constructing a grade separation and eliminating the grade crossing. Based on this understanding, Union Pacific believes the question of whether a grade separation is needed is irrelevant to Union Pacific's application to add a second mainline track at these grade crossings. With that caveat, Union Pacific responds as follows:*

*In addition to the foregoing, grade separation is not appropriate for determination at this time because the local communities and roadway authorities have not finally determined whether grade separations at these crossings are desired by those communities and authorities, what priority grade separations would have with respect to other public projects, when construction of grade separations could be begun and finished, and how grade separations would be funded. Union Pacific is aware that the local communities and roadway authorities are studying these matters (including ADOT's study concerning Maricopa Road) outside of the context of Union Pacific's applications for grade crossing alterations.*

*Furthermore, Union Pacific believes the four crossings involved in this application are*

*safe without constructing grade separations. This conclusion is supported by the fact that the Federal Highway Administration authorizes the use of gates and lights at multiple-track grade crossings as proposed in this application.*

Staff believe that the accident history at the crossings and the potential cost of constructing grade separations versus whatever benefits might be derived would not, in themselves, appear to support the need for grade separations. In the case of Maricopa Road, and to a lesser extent, the other three crossings, the physical conditions involved are rather complex. Maricopa Road has substantial commercial development along both sides of the road and on both sides of the track(s). A grade separation, whether over or under the Railroad, would be very disruptive to those businesses and would materially affect permanent access to them. This is further complicated by the proximity of intersecting roadways within a few hundred feet, including the Maricopa-Casa Grande Highway. The latter does not appear very heavily used at present, but it is not hard to visualize that this will become a major arterial in a few years, just based on the amount of property available for development along its length. This is reinforced by the fact that it apparently has met signal warrants, since signals have been installed at the intersection of the Maricopa-Casa Grande Highway and Maricopa Road, but are not yet activated. A grade separation would require the relocation of several existing roadways and intersections with Maricopa Road because of grade changes.

The three other crossings, situated at various points along the Maricopa-Casa Grande Highway, which parallels the railroad right-of-way, are all located within approximately 100 feet of the adjoining highway. There is very little room for vehicles queueing up on the approach to the crossings to wait for passing trains. Again, while traffic is at its current levels, this is not a significant problem, but once that volume begins to grow it will be necessary to provide traffic signals, coordinated with the crossing devices, and right and left turn lanes at each intersection along the highway to store turning vehicles. If projected traffic volumes as provided by the Railroad prove valid, all three crossings could be candidates for grade separation at some future date. With the proximity of the Maricopa-Casa Grande Highway to the railroad, it would be necessary to bridge over or under both the highway and the tracks. This would entail building partial interchanges at each location to accommodate those using the highway who want to cross the tracks. Potential costs in each case would be fairly substantial.

### **Other Traffic Considerations**

Of the three more rural crossings, the one at Hartman Road appears to present some challenges. The existing roadway grade approaching the tracks at that point is rather steep and the addition of a second track, even closer to the Maricopa-Casa Grande Highway, will only serve to worsen that situation. There is currently not much reason for heavy truck traffic, other than possibly hauling cattle over that crossing, but future development could alter that and there appears to be a good chance that some trucks or motor homes could hang up on the track while trying to cross. The steep grade and short area of approach could make it difficult for drivers to negotiate the crossing or while standing, waiting for trains to pass.

### **Crossing Closures**


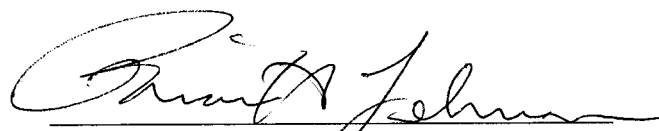
Given the amount of growth in the area, and the projected future ADT, staff would not recommend a closure of any of these crossings at this time.

### **Pinal County Support**

According to a letter dated January 9, 2008 written by David Snider, Chairman, Pinal County Board of Supervisors, Pinal County is in full support of Union Pacific's double track project. Specifically, Pinal County fully supports and approves Union Pacific's construction of one additional main track over and across public roadway crossings of the Union Pacific tracks within Pinal County. Additionally, the letter requests the Arizona Corporation Commission approve each application filed by Union Pacific for authority to install a second main track, at grade, for all crossings within Pinal County.

### **Staff Conclusions**

Having reviewed all applicable data, Staff generally supports the Railroad's application. Staff believes that the upgrades are in the public interest and are reasonable. However, Staff notes that, for Maricopa Road, one of the nine FHWA criteria have already been met. This indicates that grade separation should be considered for the Maricopa Road crossing. In addition, Staff notes that a second criterion (vehicular delay exceeds 40 vehicle hours per day) is likely to be met as early as 2010. Staff understands that the decision to grade separate is a complex one involving multiple parties, a number of years of time for planning and construction as well as substantial monetary resources. Staff strongly encourages the City of Maricopa, ADOT and the Railroad to make this crossing a priority for grade separation and initiate such a project within the next 5-10 years. Having said that, staff believes that the measures proposed by the Railroad are consistent with other similar at-grade crossings in the State and will provide for the public's safety in the interim period of time until a grade separation could be constructed. Therefore, Staff recommends approval of the Railroad's application.

  
\_\_\_\_\_  
Dave Raber  
Director  
Safety Division  
\_\_\_\_\_  
Brian H. Lehman  
Railroad Supervisor  
Safety Division



PINAL COUNTY  
BOARD OF SUPERVISORS

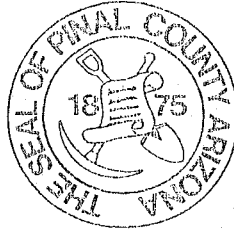
CHRIS WATSON

LIONEL D. RUIZ, District 1  
Mammoth

SANDIE SMITH, District 2  
Apache Junction

DAVID SNIDER, District 3  
Casa Grande

January 9, 2008



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2008 JAN 15 A 10:41 TERRY DOOLITTLE  
County Manager

AZ CORP COMMISSION  
DOCKET CONTROL

RR 03639A-07-0517

Mr. David Raber  
Director, Safety Division  
Arizona Corporation Commission  
2200 North Central Avenue  
Suite 300  
Phoenix, Arizona 85004

Re: Support for Union Pacific Railroad Company's Double-Track Project

Dear Mr. Raber:

This letter will serve to inform you that Pinal County fully supports Union Pacific Railroad Company's project to construct a second main line railroad track through Pinal County and the State of Arizona, known as "Union Pacific's Double-Track Project." Specifically, Pinal County fully supports and approves, and will to cooperate with Union Pacific concerning, construction of one additional main track over and across public roadway crossings of the Union Pacific Railroad tracks at grade within Pinal County, as listed on Exhibit A attached hereto. Pinal County therefore requests that the Arizona Corporation Commission approve each application filed by Union Pacific for authority to install a second main line railroad track at grade at those crossings listed on Exhibit A.

If it would be helpful to the Commission or its Staff, Pinal County would be pleased to have its representative appear at any hearings or meetings concerning Union Pacific's crossing alteration applications to the Commission to confirm the County's support and approval of those applications. If you have any questions or wish to discuss the County's position with respect to these matters, please do not hesitate to contact me.

Sincerely,

David Snider, Chairman

c: Board of Supervisors  
Ken Buchanan, Assistant County Manager  
for Development Services  
Chief Civil Deputy County Attorney, Chris Roll

**ARIZONA CORPORATION COMMISSION**  
**UNION PACIFIC'S RESPONSES TO REVISED FIRST SET OF DATA REQUESTS**  
**DOCKET NO. RR-03639A-07-0517**  
**Maricopa Road, Porter Road, White & Parker Road,**  
**and Hartman Road in City of Maricopa, AZ**  
**OCTOBER 17, 2007**

CW 1.1 Provide Average Daily Traffic Counts ("ADT") for each of the four locations.

**Response:** *With the exception of Hartman Road, as to which HDR provided the information, Union Pacific Railroad Company ("Union Pacific") must rely on information provided by others to provide ADT's. With that caveat, Union Pacific responds as follows:*

<i>Crossing</i>	<i>Current ADT</i>	<i>Source</i>
<i>Maricopa Road / SR 347</i>	<i>38,575</i>	<i>CAAG 2006 Traffic Counts data provided by Karen Wonders</i>
<i>Porter Road</i>	<i>3,000</i>	<i>2006 Traffic Impact Analysis Dunn Ranch</i>
<i>White &amp; Parker Road</i>	<i>919</i>	<i>CAAG 2006 Traffic Counts data provided by Karen Wonders</i>
<i>Hartman Road</i>	<i>366</i>	<i>2007 Traffic Counts by HDR</i>

**Source:** *Karen Wonders, City of Maricopa, Public Works @ 45145 W. Madison Ave. (PO Box 610), Maricopa, AZ 85239. (City of Maricopa Data); Jennifer Crumbliss, HDR Engineering, 8404 Indian Hills Drive, Omaha, NE 68114. (HDR Traffic Counts)*

CW 1.2 Please describe the current Level of Service ("LOS") at each intersection.

**Response:** *Union Pacific believes that the level of service analysis is concerned with mobility rather than safety. In addition, with the exception of Hartman Road, as to which HDR provided the information, Union Pacific must rely on information provided by others to calculate the level of service. With those caveats, Union Pacific responds as follows:*

<i>Crossing</i>	<i>LOS (September 2007)</i>
<i>Maricopa Road / SR 347</i>	<i>Northbound (LOS=A), Southbound (LOS=A)</i>
<i>Porter Road</i>	<i>Northbound (LOS=A), Southbound (LOS=A)</i>
<i>White &amp; Parker Road</i>	<i>Northbound (LOS=A), Southbound (LOS=A)</i>
<i>Hartman Road</i>	<i>Northbound (LOS=A), Southbound (LOS=A)</i>

**Source:** *Traffic level of service calculations were performed using Synchro and SimTraffic programs under the direction of Heidi Schneider with HDR Engineering, Inc at 5210 E Williams Circle, Suite 503, Tucson, AZ 85711, (520) 584-3600. The train delay times utilized in the analysis were provided by Tom Domres, with TKDA at 750 Shoreline Drive, Suite 100, Aurora, IL 60504, (630) 499-4110 via Union Pacific.*

CW 1.3 Provide any traffic studies done by the road authorities for each area.

**Response:** *1) ADOT has a 2007 study for the Maricopa Road / John Wayne Hwy (SR 347) Feasibility Study (ADOT TRACS #347 PN 173 H7007) which included future projections for Maricopa Road, Porter Road, White & Parker Road and Hartman Road. ADOT Contact is Tim Wilson.  
2) 2006 City of Maricopa SATS (Small Area Transportation Study) Final Report is available on the internet site <http://www.cityofmaricopa.net/PWDept.htm>*

CW 1.4 Provide distances in miles to the next public crossing on either side of the proposed project location. Are any of these grade separations?

**Response:** *Union Pacific believes that the last question in CW 1.4 raises an issue that is irrelevant, namely, whether either of the next public crossings is a grade separation. With that caveat, Union Pacific responds as follows:*

<b>Crossing</b>	<b>TO THE WEST</b>	<b>TO THE EAST</b>
<b>Maricopa Road / SR 347</b>	<b>5.0 miles to Ralston Rd</b>	<b>2.5 miles to Porter Rd</b>
<b>Porter Road</b>	<b>2.5 miles to Maricopa Rd</b>	<b>1.25 miles to White/Parker Rd</b>
<b>White &amp; Parker Road</b>	<b>1.25 miles to White/Parker Rd</b>	<b>2.4 miles to Hartman Rd</b>
<b>Hartman Road</b>	<b>2.4 miles to White/Parker Rd</b>	<b>2.44 miles to Anderson Rd</b>

*None of the adjacent crossings mentioned above are currently grade separations.*

**Source:** *HDR's use of the Union Pacific Straight-line Diagrams and [www.MapQuest.com](http://www.MapQuest.com).*

CW 1.5 How and why was grade separation not decided on at this time? Please provide any studies that were done to support these answers.

**Response:** *Union Pacific understands that whether a grade separation is needed is primarily a question of mobility and convenience for vehicular traffic on the roadway, not safety. That is because an at-grade crossing can be safe without constructing a grade separation and eliminating the grade crossing. Based on this understanding, Union Pacific believes the question of whether a grade separation is*

*needed is irrelevant to Union Pacific's application to add a second mainline track at these grade crossings. With that caveat, Union Pacific responds as follows:*

*In addition to the foregoing, grade separation is not appropriate for determination at this time because the local communities and roadway authorities have not finally determined whether grade separations at these crossings are desired by those communities and authorities, what priority grade separations would have with respect to other public projects, when construction of grade separations could be begun and finished, and how grade separations would be funded. Union Pacific is aware that the local communities and roadway authorities are studying these matters (including ADOT's study concerning Maricopa Road) outside of the context of Union Pacific's applications for grade crossing alterations.*

*Furthermore, Union Pacific believes the four crossings involved in this application are safe without constructing grade separations. This conclusion is supported by the fact that the Federal Highway Administration authorizes the use of gates and lights at multiple-track grade crossings as proposed in this application.*

CW 1.6 If this crossing were to be grade separated, provide a cost estimate of the project.

*Response: Again, Union Pacific understands that whether a grade separation is needed is primarily a question of mobility and convenience for vehicular traffic on the roadway, not safety. That is because an at-grade crossing can be safe without constructing a grade separation and eliminating the grade crossing. Based on this understanding, Union Pacific believes the question of whether a grade separation is needed is irrelevant to Union Pacific's application to add a second mainline track at these grade crossings. In addition, any attempt to estimate the cost to construct a grade separation would be speculative in the absence of a detailed study of the particular crossing in question. With those caveats, Union Pacific responds as follows:*

*In connection with its recent application to upgrade the crossing of Union Pacific tracks at the intersection of Power and Pecos Roads, RR-03639A-07-0398, the Town of Gilbert estimated that a grade separation at that location would cost \$22 million. Depending on the particular crossing involved, a reasonable range for the costs of constructing a grade separation would be between \$20 million and \$40 million.*

CW 1.7 Please describe what the surrounding areas are zoned for near this intersection. i.e. Are there going to be new housing developments, industrial parks, etc.?

**Response:** *Union Pacific believes that the second part of CW 1.7 calls for speculation as to whether new housing developments, industrial parks, or other developments will occur in the future. In addition, Union Pacific does not have access to such information, but instead must rely on information provided by others. With those caveats, Union Pacific responds as follows:*

*The zoning in the area of these crossings is shown on the City of Maricopa Draft Zoning Map and is summarized below:*

<b>Crossing</b>	<b>Zoning</b>
<b>Maricopa Road / SR 347</b>	<b>Industrial and Business</b>
<b>Porter Road</b>	<b>Single Residence Min Lot area 12,000 sq ft &amp; Industrial</b>
<b>White &amp; Parker Road</b>	<b>General Rural and Business</b>
<b>Hartman Road</b>	<b>General Rural, Business and Single Residence</b>

*The City of Maricopa public works and Central Arizona Association of Governments' planning departments can better answer the question of future developments.*

**Source:** *The Central Arizona Association of Governments' Planning Department (CAAG) <http://www.caagcentral.org/GIS/gishome.html>*

CW 1.8 Please supply the following: number of daily train movements through the crossing, speed of the trains, and the type of movements being made (i.e. thru freight or switching). Is this a passenger train route?

**Response:** *The movements are the same for these four crossings.*

*Train Count: 48 total average trains per day (46 freight, 2 passenger)*

*Train Speed: 79 mph passenger / 70 mph freight*

*Thru Freight/Switching Moves: All moves through these four crossings are thru freight. (According to MTO Rob Henderson there are no switching moves at these crossings.)*

*These crossings are used by Amtrak twice per day, three times per week.*

**Source:** *Union Pacific's Manager of Train Operations, Rob Henderson.*

CW 1.9 Please provide the names and locations of all schools (elementary, junior high and high school) within the area of the crossing.

**Response:**

- ✓ *Maricopa HS @ 45012 W Honeycutt Ave, Maricopa, AZ 85239*
- ✓ *Maricopa Wells MS @ 45725 W Honeycutt Ave, Maricopa, AZ 85239*
- ✓ *Santa Cruz Elementary @ 45012 W Honeycutt Ave, Maricopa, AZ 85239*
- ✓ *Maricopa Elementary @ 18150 N Alterra Pkwy, Maricopa, AZ 85239*
- ✓ *Pima Butte Elementary @ 42202 W Rancho El Dorado, Maricopa, AZ 85239*
- ✓ *Santa Rosa Elementary @ 21400 N Santa Rosa Drive, Maricopa, AZ 85239*

**Source:** *Sabrina Blanton, in transportation for the Maricopa County School District, located at 45012 W. Honeycutt Avenue, Maricopa, Arizona 85239, (520) 568-5120.*

CW 1.10 Please provide school bus route information concerning the crossing, including the number of times a day a school bus crosses this crossing.

**Response:** *The bus routes for all the Schools, combined, cross Maricopa Road a total of 116 times per day during the week, and cross Porter Road twice per day during the week. White & Parker Road and Hartman Road are not used.*

**Source:** *Sabrina Blanton, in transportation for the Maricopa County School District, located at 45012 W. Honeycutt Avenue, Maricopa, Arizona 85239, (520) 568-5120.*

CW 1.11 Please provide information about any hospitals in the area and whether the crossing is used extensively by emergency service vehicles.

**Response:** *The nearest hospitals to these crossings are either Chandler Regional Hospital (approximately 30 minutes away north) or Casa Grande Hospital (approximately 30 minutes away east). To our knowledge, none of these crossings are used extensively by emergency service vehicles.*

**Source:** *Jennifer Crumbliss, Senior Transportation Engineer with HDR, Engineering, Inc. at 8404 Indian Hills Drive, Omaha, NE 68114, (402) 926-7049 used the internet site [www.GoggleEarth.com](http://www.GoggleEarth.com) also, Juan Cruz, Roadway Designer with HDR in Tucson, physically verified hospital and school locations on June 14, 2007.*

CW 1.12 Please provide the total cost of improvements to each crossing.

**Response:**

<i>Crossing</i>	<i>Crossing Surface</i>	<i>Signal</i>	<i>Total</i>
<i>Maricopa Road / SR 347</i>	<i>\$69,480.00</i>	<i>\$290,315.00</i>	<i>\$359,795.00</i>
<i>Porter Road</i>	<i>\$61,760.00</i>	<i>\$333,757.00</i>	<i>\$395,517.00</i>
<i>White &amp; Parker Road</i>	<i>\$30,880.00</i>	<i>\$226,245.00</i>	<i>\$257,125.00</i>
<i>Hartman Road</i>	<i>\$46,320.00</i>	<i>\$220,000.00</i>	<i>\$266,320.00</i>

**Source:**      *Union Pacific's Engineering.*

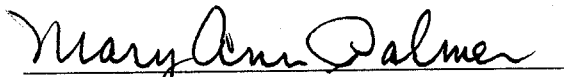
ORIGINAL AND THIRTEEN COPIES  
of the foregoing filed this 17<sup>th</sup> day of  
October, 2007, with:

Arizona Corporation Commission  
1200 West Washington Street  
Phoenix, Arizona 85007

COPY of the foregoing hand-delivered  
this 17<sup>th</sup> day of October, 2007, to:

Mr. David Raber  
Mr. Brian Lehman  
Mr. Chris Watson  
Railroad Safety Section  
Arizona Corporation Commission  
2200 North Central Avenue, #300  
Phoenix, Arizona 85004

Janice M. Alward, Esq.  
Charles H. Hains, Esq.  
Kenya Collins, Esq.  
Legal Division  
Arizona Corporation Commission  
1200 West Washington Street  
Phoenix, Arizona 85007

  
Mary Ann Palmer

Chris Watson

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**ARIZONA CORPORATION COMMISSION  
UNION PACIFIC'S RESPONSES TO STAFF'S SECOND SET OF DATA REQUESTS  
DOCKET NO. RR-03639A-07-0517  
Maricopa Road, Porter Road, White & Parker Road, Hartman Road  
APRIL 4, 2008**

CW 2.1 Based on the current single track configuration at the crossings specified by this application, please provide the current traffic blocking delay per train. Please indicate the time in which vehicular traffic is delayed (1) to allow the train to pass at a crossing and (2) due to trains stopped on the track for any purpose. The delay is measured from the point that the warning devices are activated at the crossing to the time after the train has cleared the crossing and the warning devices are reset.

**Response:** Delays for vehicular (roadway) traffic caused by trains occupying a crossing depend on the length and speed of each train traversing the crossing. Because each train can be unique for these values it would be impossible for Union Pacific accurately to provide the time of delay for vehicular traffic either while allowing trains to pass the crossing or because trains are stopped in the crossing. With that caveat, Union Pacific responds as follows:

Union Pacific operations are governed by maximum allowable speeds as identified by timetable. Trains at the crossings involved in this application operate at timetable speeds of 65 mph and the average length of trains is approximately 6,000 feet. At that train length and speed, the average delay for vehicular traffic (1) to allow the train to pass at these crossings, measured from the point that the warning devices are activated at the crossing to the time after the train has cleared the crossing and the warning devices are reset, is approximately 1.549 minutes.

The average time vehicular traffic is delayed (2) due to trains stopped on the track for any purpose, measured from the point that the warning devices are activated at the crossing to the time after the train has cleared the crossing and the warning devices are reset, varies according to the condition creating the blockage. These varied conditions include mechanical failure such as a broken air hose, a grade crossing accident, or operations such as trains meeting or passing. Given the variety of possible conditions causing trains to be

stopped on a crossing, Union Pacific does not catalog the average time vehicular traffic is delayed by stopped trains.

With that caveat, Union Pacific responds as follows: A.R.S. § 40-852 requires that, except in cases of unavoidable accident, a train blocking a crossing for more than 15 minutes must be cut to facilitate traffic flow. ACC Regulation R14-5-104(C)(7) and Union Pacific's operating practices allow a train to block a public grade crossing for no more than 10 continuous minutes, unless the train is continuously moving in the same direction during the entire time it occupies the crossing, or the blockage is caused by wrecks, derailments, acts of nature, mechanical failure, or other emergency conditions.

**Source:** Union Pacific's Engineering, in consultation with TKDA at 750 Shoreline Drive, Suite 100, Aurora, IL 60504, (630) 499-4110

CW 2.2 Based on anticipated double tracking at the crossings covered by this application and projected train traffic of 84 trains per day by 2016, please provide the projected (2016) blocking delay per train. Please indicate the time in which vehicular traffic is delayed (1) to allow the train to pass at a crossing and (2) due to trains stopped on the track for any purpose. The delay is measured from the point that the warning devices are activated at the crossing to the time after the train has cleared the crossing and the warning devices are reset.

**Response:** Delays for vehicular (roadway) traffic caused by trains occupying a crossing depend on the length and speed of each train traversing the crossing. Because each train can be unique for these values it would be impossible for Union Pacific accurately to provide the time of delay for vehicular traffic either while allowing trains to pass the crossing or because trains are stopped in the crossing. With that caveat, Union Pacific responds as follows:

Union Pacific operations are governed by maximum allowable speeds as identified by timetable. Trains at the crossings involved in this application are projected to operate at timetable speeds of 65 mph and the average length of trains is projected to be approximately 8,000 feet. At that train length and speed, the average delay for vehicular traffic at these crossings in 2016 (1) to allow the train to pass at the crossing, measured from the point that the warning devices are activated at the crossing to the time after the train has cleared the crossing and the warning devices are reset, is projected to be approximately 1.899 minutes.

The average time vehicular traffic is delayed (2) due to trains stopped on the track for any purpose, measured from the point that the

warning devices are activated at the crossing to the time after the train has cleared the crossing and the warning devices are reset, varies according to the condition creating the blockage. These varied conditions include mechanical failure such as a broken air hose, a grade crossing accident, or operations such as trains meeting or passing. Given the variety of possible conditions causing trains to be stopped on a crossing, Union Pacific does not catalog the average time vehicular traffic is delayed by stopped trains.

With that caveat, Union Pacific responds as follows: A.R.S. § 40-852 requires that, except in cases of unavoidable accident, a train blocking a crossing for more than 15 minutes must be cut to facilitate traffic flow. ACC Regulation R14-5-104(C)(7) and Union Pacific's operating practices allow a train to block a public grade crossing for no more than 10 continuous minutes, unless the train is continuously moving in the same direction during the entire time it occupies the crossing, or the blockage is caused by wrecks, derailments, acts of nature, mechanical failure, or other emergency conditions.

*Source:* Union Pacific's Engineering, in consultation with TKDA at 750 Shoreline Drive, Suite 100, Aurora, IL 60504, (630) 499-4110

CW 2.3 Please provide the posted vehicular speed limit for the roads intersecting each crossing covered in this application.

*Response:*

Crossing	Posted Vehicular Speed Limit
Maricopa Road (SR 347)	35 mph
Porter Road	25 mph *
White & Parker Road	40 mph *
Hartman Road	45 mph *

\* The speed limits given are those posted for the roads intersecting these crossings. However as a practical matter, maximum speed for vehicular traffic at these crossings is approximately 15 mph because these crossings are within 150 feet of a stop condition.

*Source:* Jennifer Crumbliss, Senior Transportation Engineer with HDR Engineering, Inc. at 8404 Indian Hills Drive, Omaha, NE 68114

CW 2.4 Please provide information as to whether passenger buses (other than school buses) utilize th[ese] crossing[s] and the number of times a day a passenger bus crosses.

**Response:** Union Pacific does not have access to such information, but instead must rely on information provided by others. With that caveat, Union Pacific responds that it is not aware of any public passenger buses that utilize the crossings involved in this application.

**Source:**

- 1) Christine McMurdy, Public Works Department, City of Goodyear, 190 N. Litchfield Road, Goodyear, AZ 85338, (623) 932-1637
- 2) Karen Thomas, GIS Services Department, City of Maricopa, 45145 W. Madison Avenue, P.O. Box 610, Maricopa, AZ 85239, (520) 568-9098
- 3) Aaron Cart, GIS Department, City of Casa Grande, 510 E. Florence Blvd., Casa Grande, AZ 85222, (520) 421-8625
- 4) Belinda Cota, Planning Department, City of Eloy, 628 N. Main Street, Eloy, AZ 85231, (520) 466-2578

CW 2.5 Please provide information as to whether vehicles carrying hazardous materials utilize th[ese] crossing[s] and the number of times a day a vehicle carrying hazardous materials crosses.

**Response:** Union Pacific has been unable to obtain any information responsive to this request. It is Union Pacific's understanding that any vehicle carrying hazardous materials may utilize public crossings unless otherwise posted, but Union Pacific knows of no way it can investigate or determine whether such vehicles use these crossings or with what frequency.

CW 2.6 Please indicate whether any spur lines have been removed within the last three years inside a 10 mile radius of any crossings covered in this application. Please include the reason for the removal, date of the removal and whether an at-grade crossing or crossings were removed in order to remove the spur line.

**Response:** Using the definition of a "spur line" or "spur track" as "a stub track of indefinite length diverging from a main track or other track," ACC Regulation R14-5-101(20), the following spur lines have been removed inside a 10-mile radius of the crossings covered in this application.

Spur Line Removed	Reason for Removal	Date of Removal
Martin Resources 130-ft. spur at MP 898.03	Track no longer needed to serve industry	Unknown
150-ft. vacant spur at MP 905.65	Track no longer needed to serve industry	Unknown
2,650-ft. vacant spur at MP 905.68	Track no longer needed to serve industry	Unknown
* Ak Chin spur at MP 905.74	Track no longer needed to serve industry	Approximately November, 2005
563-ft. vacant spur at MP 905.88	Track no longer needed to serve industry	Unknown
* AS&R spur at MP 913.82	Track no longer needed to serve industry	Approximately November, 2005

\* These were the only at-grade crossings removed in order to remove a spur line. See Arizona Corporation Commission Decision No. 68111 docketed September 9, 2005 authorizing closure of these two spur crossings.

**Source:** Union Pacific's Engineering

CW 2.7 Please indicate which, if any, spur lines have been removed within the last three years inside a 10 mile radius of any crossings covered in this application were done at the direction or request of (1) the relevant road authority, (2) the industry served by the spur line, or (3) by the railroad.

**Response:** To the best of Union Pacific's present knowledge, all of the spur lines shown above were removed at the direction or request of the railroad.

**Source:** Union Pacific's Engineering

ORIGINAL AND THIRTEEN COPIES  
of the foregoing filed this 3 day of  
April, 2008, with:

Arizona Corporation Commission  
1200 West Washington Street  
Phoenix, Arizona 85007

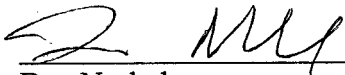
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COPY of the foregoing e-mailed and  
mailed this 3 day of April, 2008, to:

Mr. David Raber  
Mr. Brian Lehman  
Mr. Chris Watson  
Railroad Safety Section  
Arizona Corporation Commission  
2200 North Central Avenue, #300  
Phoenix, Arizona 85004

Charles H. Hains, Esq.  
Legal Division  
Arizona Corporation Commission  
1200 West Washington Street  
Phoenix, Arizona 85007



Dan Norkol